ABSTRACT

Rapid identification and modeling of transmission media channel characteristics of a communications system using a correlation based technique. The technique provides a known training sequence used to generate a known quantity that operates on an observed or measured received signal, which is a function of the training sequence and the channel's impulse response, to give an estimate of the model of the channel. The technique decouples the training sequence from the observed or measured output, leaving the estimated impulse response. The impulse response of the transmission media channel is rapidly computed and processed to set the initial values of filter coefficients, for example, an echo canceller and an equalizer, in the communications system. Once the coefficients are initialized, if needed, a standard technique, such as least mean square (LMS) correlation, can be used to fine-tune the coefficients to converge on or model the transmission media channel's characteristics.